

Atty. Docket No.: CA1457  
**PATENT APPLICATION**RESPONSE UNDER 37 C.F.R. § 1.116  
U.S. Application No.: 09/783,163Claim 1

At page 5, paragraph 2 of the Office Action, the Examiner expressly admits that the first cited reference, Axberg et al., does not specifically teach or suggest a device management table defining usability of the storage devices, which is specifically recited in claim 1. The Examiner alleges that the second cited reference, Shank et al., discloses such table at 5:26-40 (column 5, lines 26-40). Applicants carefully examined the portion of Shank et al. cited by the Examiner, as well as the remainder of that reference, but could not find the alleged teaching. Specifically, while Shank et al. teaches changing statuses of multiple data paths which can be used to access a storage device, Shank et al. does not teach or suggest the claimed device management table defining usability of the storage devices.

In more detail, Shank teaches a system wherein an array of storage devices may be accessed via a plurality of input-output (I/O) paths. The relevant portion of Shank et al. appearing at 3:14-24 states with reference to Fig. 1:

Storage device array 104 comprises a plurality of storage devices (typically hard disk drives) 106, 108, 110, 112, 114 and 116. These storage devices 106-116 are operatively coupled to the computer 102 via one or more input/output (I/O) paths, formed by one or more I/O bus paths 118, 120, 122 compliant with a SCSI (small computer system interface) or other protocol from the computer 102 to the disk array 104, and one or more I/O device paths 140-162 from the I/O bus paths 118, 120, 122 to the storage devices 106-116.

Applicants respectfully submit that the input-output (I/O) paths of Shank et al. are not the same as the storage device recited in the claim 1. This is abundantly clear from the above-cited portion of the specification of Shank et al.

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The portion of Shank et al. at 5:26-40, cited by the Examiner in support of the rejection, deals with the virtual storage functions which change status of various input-output (I/O) data paths within the system of Shank et al. For example, the function Put Active Path Out Of Service, described at 5:30-32 of Shank et al. takes I/O paths previously designated as active and marks them out of service. As the Examiner would undoubtedly appreciate, the above functions described by Shank et al. deal exclusively with the aforesaid data paths (data channels) and have nothing to do with a table defining the usability of storage devices. The remainder of Shank et al. also does not supply the teaching of the aforesaid table.

Thus, Applicants respectfully submit that because neither Axberg et al. nor Shank et al. teach or suggest the device management table defining the usability of the storage devices, which is specifically recited in claim 1, claim 1 is patentable.

Applicants additionally note that the Examiner reads the I/O port management table defining available connections between the I/O ports and the storage devices, which is part of the storage subsystem recited in claim 1, on the hash tables 1121, 1122, 1123, 1124, or 1125 of Axberg et al. Applicants respectfully submit that the Examiner's reading is incorrect. First of all, the hash tables 1121, 1122, 1123, 1124, or 1125, which include the connection table referred to by the Examiner, are parts of the local library, which, in turn is a part of the agent 431 residing on the host system of Axberg et al. and not on the storage subsystem. Specifically, Axberg et al. teaches at "Local agent 431 is programming code and associated data residing in a host system, executing on its CPU 401. Agent 431 includes local library 1001, network daemon 1002, and shared memory 1003." At 20:20-60, cited by the Examiner Axberg et al. further teaches that the

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local library contains the aforesaid five hash tables. Therefore, the tables referred to by the Examiner are not parts of the storage subsystem as recited in claim 1. Therefore, Axberg et al. fails to teach or suggest a storage subsystem including an I/O port management table defining available connections between the I/O ports and the storage devices. Therefore, claim 1 is patentable for this additional reason as well.

Second, the hash tables of Axberg et al. are not the I/O port management table defining available connections between the I/O ports and the storage devices recited in claim 1. The hash tables described at 20:20-60 of Axberg et al., which include the connection tables referred to by the Examiner, contain a set of input parameters and a pair of function pointers, see Axberg et al. at 20:35-39. The aforesaid input parameters are described at 20:61-21:7. None of these input parameters even remotely relate to the "available connections between the I/O ports and the storage devices," contained in the table recited in claim 1. Applicants respectfully draw the Examiner's attention to the aforesaid portions of Axberg et al., containing no reference what so ever to the claimed I/O ports and the storage devices. Therefore, claim 1 is patentable for this additional reason as well.

Third, the hash tables of Axberg et al. by their very nature are used for a fast lookup of functions, as disclosed at 20:35-39. They are not used for defining available connections between the I/O ports and the storage devices as recited in claim 1. This provides an additional reason for patentability of claim 1 over the cited art.

Fourth, at page 3, first paragraph of the Office Action, the Examiner apparently relies on the doctrine of inherency to supply the teaching of a plurality of I/O ports recited in claim 1.

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Applicants respectfully submit that the purported use of the doctrine of inherency in the context of 35 U.S.C. 103 rejection is improper. It is well-established in the law that the standard of teaching required of a prior art reference to support a 35 U.S.C. 103 rejection is substantially more than to support a 35 U.S.C. 102 rejection of anticipation, however, since the Doctrine of Inherency does not extend beyond anticipation. Inherency of an advantage and its obviousness are different questions; that which may be inherent is not necessarily known; obviousness cannot be predicated on that which is unknown. *In re Adams*, 53 CCPA 996, 356 F.2d 998, 148 U.S.P.Q. 742 (1966). Inherency and obviousness are entirely different concepts. The principle of inherency is applicable only with respect to 35 U.S.C. §102 rejections. *In re Rinehart*, 531 F.2d 1048, 189 U.S.P.Q. 143 (CCPA 1976).

Claims 2-5

With respect to Examiner's rejection of claims 2-5, Applicants respectfully submit that these claims are patentable by definition, at least due to their dependence on the patentable independent claim 1.

Claim 6

Claim 6 recites a storage apparatus with a device management store, in which a status of a plurality of storage devices is stored, and an I/O port management store, in which available connections between said plurality of I/O ports and the plurality of storage devices are stored. First, the Examiner alleges that the respective device management store is described at 2:18-28 and 4:24-27 of Shank et al. As stated above with reference to claim 1, Shank et al. deals with storing information on input-output (I/O) data paths and not with storage devices. The above

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portions of Shank et al. cited by the examiner in support of rejection of claim 6 are also limited to the management of the input-output (I/O) data paths information. Therefore, neither Axberg et al. nor Shank et al. teach or suggest the claimed device management store; in which a status of a plurality of storage devices is stored. For this reason, claim 6 is patentable.

Second, the Examiner alleges that the I/O port management store, in which available connections between said plurality of I/O ports and the plurality of storage devices are stored, is taught at 6:58-63 of Shank et al. Applicants again carefully examined the cited portion of Shank but could not find any such teaching. Specifically, Applicant respectfully submits that while the cited portion does mention various I/O paths, it does not teach or suggest the claimed store.

When the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such teaching or suggestion appears in the reference. See *In re Rijckaert*, 28 U.S.P.Q.2d 1955,7 (Fed. Cir. 1993). The Examiner has clearly failed to do so. Therefore, claim 6 is patentable.

Third, claim 6 additionally recites "a plurality of I/O ports providing an interface to said plurality of storage devices, each I/O port being uniquely connectable to one of a plurality of host I/O controllers on a user machine." The Examiner cites portion of Shank et al. at 6:58-63 as teaching this element. Applicants respectfully disagree. While Shank et al. does mention "SCSI ports," Shank et al. is silent as to "each I/O port being uniquely connectable to one of a plurality of host I/O controllers on a user machine." In this regard, Applicants respectfully submit that the Examiner may not ignore the aforesaid claim limitation. Therefore, claim 6 is patentable for this additional reason as well.

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Forth, because neither Axberg et al. nor Shank et al. teach or suggest the device management store and the I/O port management store, these references also do not disclose the “storage resource management processor being capable of communicating with a SoD center system and of modifying the device management store and the I/O port management store” and updating the “device management store to manage the status of one of the storage devices and said I/O port management store to manage the available connections between the one storage device and the user machine.” Portions of Shank et al. cited by the Examiner to support his contrary assertion, appearing at 2:18-28 and 4:24-27, deal exclusively with managing information in I/O paths and not storage devices. Absence of the teaching of the aforesaid two limitations from the cited art provides an additional reason for patentability of claim 6.

Finally, Applicants respectfully submit that to the extent the Examiner relies on the Examiner's arguments made with respect to claim 1 in rejecting claim 6, the patentability arguments made by Applicants in connection with claim 1 are also applicable to claim 6.

For all the foregoing reasons, Applicants respectfully submit that claim 6 is patentable over Axberg et al. and Shank et al.

Claims 7-9

With respect to Examiner's rejection of claims 7-9, Applicants respectfully submit that these claims are patentable by definition, at least due to their dependence on the patentable independent claim 6.

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Claim 10

With respect to claim 10, the Examiner simply states that this claim is rejected for the same reason as claim 1-5. However, Applicants note that this claim includes substantial limitations, which are different from the limitations of the claims 1-5. Specifically, claim 10 recites: (1) receiving at a host an I/O path setting request from the center system, the I/O path setting request specifying a path to a storage resource in said storage subsystem allocated for use by the host, said path defining a unique communication channel from one of a plurality of host I/O controllers on said host to one of a plurality of I/O ports on said storage subsystem; (2) requesting an operating system resident in said host to update an I/O path setting in an I/O path setting table based upon said I/O path setting request; (3) receiving an update result from said operating system; and (4) sending a setting result to said center system based upon said update result, thereby enabling the center system to manage accessibility of the storage resource by the host. Because of the Examiner's failure to specifically address the above limitations of claim 10 and to point out to specific portions of Axberg et al. and Shank et al. teaching the respective elements of this claim, Applicants respectfully submit that with respect to claim 10, the Examiner has failed to establish the prima facie case of obviousness.

As it is well-known, in rejecting claims under 35 U.S.C. 103, the Examiner bears the initial burden of presenting a prima facie case of obviousness. In re Oetiker, 24 U.S.P.Q.2d 1443, 1444 (Fed. Cir. 1992). Only if that burden is met, does the burden of coming forward with evidence or argument shift to the Applicants. Id. "A prima facie case of obviousness is established when the teachings from the prior art itself would have appeared to have suggested

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the claimed subject matter to a person of ordinary skill in the art.” In re Bell, 26 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1993) (quoting In re Rinehart, 189 U.S.P.Q. 143, 147 (CCPA 1976)). If examination at its initial stage does not produce a prima facie case of unpatentability, then without more the applicant is entitled to grant of the patent. See 24 U.S.P.Q.2d at 1444.

Therefore, Applicants submit that claim 10 is patentable.

Claims 11-18

With respect to Examiner’s rejection of claims 11-18, Applicants respectfully submit that these claims are patentable by definition, at least due to their dependence on the patentable independent claim 10.

Claim 19

Applicants respectfully submit that the above patentability arguments made with respect to claim 10, equally apply to claim 19. Therefore claim 19 is patentable.

Claim 20

First, claim 20 recites determining whether sufficient resources exist to meet the received storage resource demand. The Examiner alleges that this limitation is taught at 6:20-23 of Shank et al. Applicants respectfully disagree. The cited portion of Shank et al. deals with a lookup process which is invoked to locate a physical storage device hosting the virtual storage volume to which an I/O request is directed. There is nothing in the cited portion of Shank et al. as well as in the reminder of that reference that teaches or suggests the claimed determining of sufficiency of storage resources. When the PTO asserts that there is an explicit or implicit teaching or suggestion in the prior art, it must indicate where such teaching or suggestion appears in the



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reference. See *In re Rijckaert*, 28 U.S.P.Q.2d 1955,7 (Fed. Cir. 1993). The Examiner has clearly failed to do so. For this reason, claim 20 is patentable over the cited art.

Second, Applicants respectfully submit that the demand for storage resources recited in the claim 20 is not the same as the I/O request described in portions Shank et al. cited by the Examiner.

Finally, Applicants respectfully submit that Axberg et al. and Shank et al. fail to teach or suggest the claimed management result indicating whether storage resources have been successfully allocated, which is received from the storage subsystem. The Examiner attempts to read this term on the configuration file containing a list of all available I/O paths described at 8:2-27 of Shank et al. Applicants respectfully submit that the Examiner's reading of Shank is incorrect. Specifically, the configuration file of Shank et al. does not indicate whether storage resources have been successfully allocated, but merely lists various paths to storage devices. Moreover, Shank et al. never mentions that the aforesaid configuration file is received from the storage subsystem, as recited in claim 20.

Axberg et al. does not remedy the above deficiencies of Shank et al. Therefore, claim 20 is patentable over Axberg et al. and Shank et al.

Conclusion

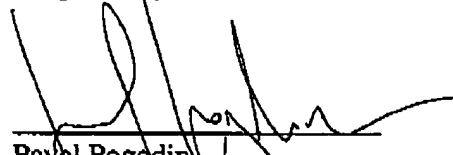
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

  
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MOUNTAIN VIEW OFFICE

**23493**

CUSTOMER NUMBER

Date: April 3, 2006

**CERTIFICATE OF FACSIMILE TRANSMISSION**

I hereby certify that this RESPONSE UNDER 37 C.F.R. § 1.116 is being facsimile transmitted to the U.S. Patent and Trademark Office this 3rd day of April, 2006.

  
Mariann Tam